Mr. Michael Troyanovich
Corporate Secretary and General Council
One Titan
Titan International, Inc.
201 Spruce Street
Quincy, Illinois 62301

Re: NOTICE OF DISAPPROVAL
Administrative Order, Docket No. 86-F0011
Dico's Performance Evaluation Report No. 30
Des Moines TCE Site, Des Moines Iowa

Dear Mr. Troyanovich:

The U.S. Environmental Protection Agency has received and reviewed Dico's revised Performance Evaluation Report No. 30, dated May 26, 2016, and the revised figures submitted via e-mail on June 17, 2016. Enclosed is a list of comments. The comments shall be addressed and the revised documents resubmitted to the EPA within 30 days of receipt of this letter. It may be advantageous for us to discuss your proposed changes to the document prior to resubmitting.

If you have any questions concerning this matter or the comments enclosed, please contact me at (913) 551-7977.

Sincerely,

Erin S. McCoy, P.G.
Remedial Project Manager
Iowa/Nebraska Remedial Branch
Superfund Division

Enclosure

Cc: Mr. Brian Mills, Dico
Mr. Gazi George, Dico
Mr. Ty Steinman, Dico
Mr. Hylton Jackson, INDR
Mr. Vern Rash, DMWW

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REMB	CNSL	CNSL	REMB	SUPR	SUPR
McCoy	Pemberton	Hoefer	Juett	Jackson	Peterson

Comments on Response to Comments on the revised Performance Evaluation Report #30
Des Moines TCE Site, Des Moines, Iowa
Dated May 2016

General Comment

1) As indicated in PER #29 (2014), a relatively constant or narrow band in recovered trichloroethylene (TCE) concentrations exists, in addition to low concentrations of degradation products. This pattern remains for 2015 (i.e., TCE stripper influent concentrations of 240 micrograms per liter [µg/L] to 1500 µg/L) and indicates continued recovery/plume containment is necessary to extract source mass until an alternative technological approach is approved by the EPA. The near asymptotic mass concentrations depicted in Figure 9 demonstrate the limitation of pump & treat systems in reducing contaminant mass to meet restoration goals at the site. As indicated in the Five-Year Review, there may be opportunities for optimization which could include implementation of an alternative hydraulic containment or source area treatment technologies. However, until a feasibility study is performed to evaluate alternative remedial actions that could be used at the site, there is no need to state specific types of alternatives which could be used at the site within the report. In fact, doing so is confusing since several alternative technologies are introduced throughout the report and not in a single location where explanation can be included as to why they are being mentioned and how they compare to each other. Also, even though specific technologies are mentioned, no data is provided to show that they could be used at the site. Examples of potential remedial actions presented include, but are not limited to natural attenuation (Section 1), bacterial bio-degradation remediation and oxidative aeriation (Section 7). Please remove any reference to specific alternatives in the report to alleviate confusion, but it is not necessary to remove any general statements regarding Dico's wish to pursue alternative remedial options.

2) Several of the abbreviations are either not spelled out the first time they are used or are spelled out multiple times in the report. Review the report to make sure that the abbreviations are spelled out the first time they are used and that only the abbreviation is used from then on within the report and resubmit.

3) Natural attenuation (NA) is discussed throughout the report. First, it should be noted that any NA requires monitoring to verify that NA can reach the remedial action objectives. This is known as monitored natural attenuation (MNA). Neither NA nor MNA is the selected remedy for operable unit 1 (OU1). Second, in order for MNA to be considered as a viable potential remedial action, data and discussions have to be presented to support that conditions exist on site for MNA to occur (redox conditions at the site), that MNA is occurring (increase in breakdown chemicals corresponding to decreases in concentrations of chemicals of concern), and that all the source areas have been addressed. Dico has not presented data to support that MNA is occurring or that all potential source areas have been addressed. If Dico would like to submit a work plan to provide this information, please do so. Otherwise, remove references to using NA or MNA at the site as the required data has not been provided. Please review the following MNA guides for additional details.
    a. *Performance Monitoring of MNA Remedies for VOCs in Ground Water* guide, April 2004, EPA/600/R-04/027.
    b. *An Approach for Evaluating the Progress of Natural Attenuation in Groundwater*, Dec. 2011, EPA 600/R-11/204.
    c. *Site Characterization for MNA of VOCs in Ground Water*, Nov. 2009

Specific Comments

1) **Section 1, Page 2, Paragraph 1.** The text indicates that this report, in part, is intended to support Dico's claims that the system has been very effective in the past and reached a stage where it can be eliminated and replaced with NA (Section 1). TCE concentrations, while variable, do not indicate declining influent concentrations. Influent TCE concentrations in 2015 ranged from 240 to 1,500 µg/L. Over the past five years influent TCE concentrations have averaged from 455.8 to 496.7 µg/L. The influent concentration of TCE at well ERW-07 was 780 µg/L in April and 480 µg/L during the October sampling event. There appears to be a persistent source of impacts to groundwater at OU1. And while DICO's groundwater monitoring results demonstrate that the hydraulic containment provided by the continued operation of the P&T system restricts plume migration to other areas, alternative remedial options need to be addressed in a feasibility report where the ability of each remedial option to contain or remediate contamination can be examined in detail. Alternative remedial actions should not be presented in a progress report. See the general comment section and remove references to specific potential remedial alternatives within the report before resubmitting.

2) **Section 2.2, Page 2, Paragraph 2.** The text indicates wells ERWs 5/6/7 collectively pumped at consistent rates of about 105 gallons per minute (gpm). A review of the monthly progress reports included within the appendices indicates a flowrate average of about 184 gpm. Review and revise to be consistent throughout the report.

3) **Section 2.3, Page 3, Paragraph 2, Sentence 1. The** EPA disagrees with the assertion that only traces of dissolved phase contaminants remain. See specific comment 1 and revise for resubmittal accordingly.

4) **Section 2.3, Page 4, Paragraph 3, Last Sentence.** This sentence indicates the technologies currently being discussed with the EPA for an alternative approach to P&T. However, Dico has not submitted a work plan to present and/or test alternative remedial actions that could be used at the site. Please remove the statement from the report until Dico submits a work plan to test alternative remedial options for EPA review.

5) **Section 2.3.** This section indicates that the TCE concentrations in samples collected in 2015 from the influent of the air stripper are relatively consistent over the last ten years of data. However, the influent samples have not been above 1,000 since January 2010. Further review of Figure 5 shows that the January 2015 influent concentration was the highest concentration measured in the past ten years. Modify the report to show the increase in concentration. If Dico believes that this is consistent with previous data, please provide more data to support that conclusion.

6) **Section 3.0, Page 4, Paragraph 1, Sentence 2.** The text indicates that hydraulic head measurements suggest a groundwater capture width of roughly 100 feet. As depicted in Figure 11, monitoring wells are about 90 feet to 120 feet from the extraction wells. The use of water levels from the extraction wells, due to well inefficiencies, is not appropriate for estimating the extent of the capture zone. The EPA recommends installing piezometers within 10 feet to 15 feet of the extraction wells to provide representative water levels under a pumping scenario, which would adequately evaluate the capture zone.

7) **Section 3.0, Page 4, Paragraph 2, Sentence 3.** The apparent groundwater low in the area of

piezometer P-2 follows the hydraulic gradient depicted on each of the Figure 11 groundwater flow maps. The equipotential lines that depict a depression in this area are not based on static water level data. The closest monitoring well is about 400 feet to the west (NW-29). Review and revise these figures (April, July, & October 2015).

8) **Section 3.0, Page 5, Paragraph 2.** The EPA concurs that the river will lose water to the aquifer due to the spillway flashboards increasing hydrostatic pressure. However, according to Figure 3, the January groundwater elevation at well ERW6 was 784.91 feet vs. the river elevation of about 783 feet; groundwater in wells NW-2, ERW-5 and NW-12 were of similar elevation to the river. In addition, all groundwater elevations west of the river were less than 783 feet (i.e., <782.6'). Revise the report to explain this occurrence, potential impacts on groundwater flow and the associated higher stripper influent TCE concentrations.

9) **Conclusions, Page 6.** Section 7 states that "Dico will solicit USEPA to conduct some feasibility studies for alternative long term, more economical alternatives in lieu of the current discussion with USEPA and the City of Des Moines regarding the future of the site and its development potential." As outlined in CERCLA, any additional work to identify potential alternative remedial actions is Dico's responsibility. The EPA welcomes discussions with DICO and submittal of a feasibility study work plan to explore alternative technologies to adequately address the environmental impacts at the site. Please revise the text to remove any reference to the EPA performing additional studies for Dico.

10) **Figure 11.** Explain why groundwater elevations at well NW-22 in July were about 5 feet higher than all other site-associated groundwater elevations. Is this well adjacent to the storm sewer? Could the groundwater be leaking into the sewer system?

11) **Figure 12.** The figure does not depict what is believed to be happening south of well NW-7 for TCE during the April 2015 event, probably due to lack of data. However Figure 13 does give an extrapolation, without data to support it, south of well NW-7 for 1,2-DCE for the same sampling period. If an extrapolation without data can be made for one of them, it should either be supported with data in the notes or the text should explain why it can be done for one chemical and not the other. Also, without data to support a conclusion, the contour lines should be dashed. Revise the figures.